

REMARKS

The specification has been amended to provide a cross-reference to the previously filed International Application. The claims have also been amended to delete multiple dependencies and to place the application into better form for examination. Entry of the present amendment and favorable action on the above-identified application are earnestly solicited.


Attached hereto is a marked-up copy of the changes made to the application by this Amendment.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By


John A. Castellano, #35,094

P.O. Box 747
Falls Church, VA 22040-0747
(703) 205-8000

JAC/cgc
0459-0638P

Attachment: Version With Markings Showing Changes Made

(Rev. 01/22/01)

VERSION WITH MARKINGS SHOWING CHANGES MADE

The specification has been amended to provide cross-referencing to the International Application.

The claims have been amended as follows:

3. (Amended) A device according to claim 1 [or 2], wherein the computer further is adapted for performing a procedure at least once, the procedure comprising

determining, based on at least two measurements, whether additional measurements are required,

asserting a possible desired target defining a desired output of the first detection means,

producing a possible control data item based on the target, and

retrieving and storing, in the data structure, additional measurement results being the concurrent output produced by the first detection means and the second detection means.

4. (Amended) A device according to [any of claims 1-3]claim 1, wherein the second detection means are arranged for detecting the level (FIO₂, PIO₂) of oxygen in the gas flow passing into the respiratory system, and the device further comprises

third detection means for detecting the level (FE'O₂, FĒO₂, PE'O₂, PĒO₂) of oxygen in the gas flow passing out of the respiratory system and producing an output to the computer

accordingly, and

fourth detection means for detecting variables (V_t , f , \dot{V}) of the gas flow passing the respiratory system and producing an output to the computer accordingly, said output being sufficient for the computer to establish the volume flow of gas passing the respiratory system,

the computer being adapted for retrieving and storing output from the third detection means and the fourth detection means within the data structure relating these stored output mutually as well as with the output from the first detection means and the second detection means retrieved simultaneously.

6. (Amended) A device according to [any of claims 1-5]claim 1, wherein the computer is adapted to determine a parameter relating to an equilibrium state of the overall oxygen uptake or consumption of the individual based on the output of at least one of the detection means, to compare said parameter with a predefined threshold value and to produce a control data item accordingly if said parameter exceeds said threshold value.

7. (Amended) A device according to [any of claims 1-6]claim 1, wherein the computer is adapted to assess the appropriate change in oxygen level in the inspired gas (FI_{O_2}) from the current oxygen level (FI_{O_2}) so as to achieve a given desired target oxygen level in the blood (Sa_{O_2} , Sp_{O_2} , Pa_{O_2} , Pp_{O_2}) and produce a control data item accordingly.

10. (Amended) A device according to [any of claims 7-9]claim 7, wherein the computer is adapted to operate the control means for controlling the flow to the gas mixing unit of at least one gas, in response to said control data item relating to the assessed change in oxygen level from the computer so as to change the oxygen level (FIO2) in the inspired gas flow accordingly.

11. (Amended) A device according to [any of claims 1-10]claim 1, wherein one gas is atmospheric air and another gas has an oxygen fraction higher than that of atmospheric air, preferably in the range 0.85 to 1.00.

12. (Amended) A device according to [any of claims 1-11]claim 1, wherein one gas is atmospheric air and another gas has an oxygen fraction in the range of 0.00 to 0.21, preferably 0.00 to 0.05.

13. (Amended) A device according to [any of the preceding claims]claim 1, wherein the oxygen saturation in the blood circulation of the individual is in the range of 65 to 100%, preferably 85 to 100%.

14. (Amended) A device according to [any of claims 1-13]claim 1, wherein the first detection means is arranged for detecting a parameter relating to the saturation level of oxygen in the arterial blood stream.

18. (Amended) A device according to claim 15 [or 16], wherein the computer is adapted for determining at least one respiratory parameter (Rdiff, shunt, \dot{V}/\dot{Q} , H-shift, V-shift) being descriptive of the condition of the individual, the determination being based on at least two measurements.

20. (Amended) A device according to claim 18 [or 19], wherein said parameter(s) (Rdiff, shunt, \dot{V}/\dot{Q} , H-shift, V-shift) is/are [generalised]generalized parameters being comparable to similar parameter(s) determined for other individuals.

21. (Amended) A device according to [any of claims 15-20]claim 15, wherein the computer is adapted to determine a parameter relating to an equilibrium state of the overall oxygen uptake or consumption of the individual based on the output of at least one of the detection means, to compare said parameter with a predefined threshold value and to produce a control data item accordingly if said parameter exceeds said threshold value.

22. (Amended) A device according to [any of claims 15-21]claim 15, wherein the computer is adapted to asses the appropriate change in oxygen level in the inspired gas (FIO2)

from the current oxygen level (FIO₂) so as to achieve a given desired target oxygen level in the blood (SaO₂, SpO₂, PaO₂, PpO₂) and produce a control data item accordingly.

25. (Amended) A device according to [any of claims 22-24]claim 22, wherein the computer is adapted to operate the control means for controlling the flow to the gas mixing unit of at least one gas, in response to said control data item relating to the assessed change in oxygen level from the computer so as to change the oxygen level (FIO₂) in the inspired gas flow accordingly.

26. (Amended) A device according to [any of claims 15-25]claim 15, wherein one gas is atmospheric air and another gas has an oxygen fraction higher than that of atmospheric air, preferably in the range 0.85 to 1.00.

27. (Amended) A device according to [any of claims 15 to 26]claim 15, wherein one gas is atmospheric air and another gas has an oxygen fraction in the range of 0.00 to 0.21, preferably 0.00 to 0.05.

28. (Amended) A device according to [any of claims 15 to 28]claim 15, wherein the oxygen saturation in the blood circulation of the individual is in the range of 65 to 100%, preferably 85 to 100%.

29. (Amended) A device according to [any of claims 15 to 28]claim 15, wherein the first detection means is arranged for detecting a parameter relating to the saturation level of oxygen in the arterial blood stream.

33. (Amended) A device according to [any of claims 30-32]claim 30, wherein the computer is adapted to operate the control means for controlling the flow to the gas mixing unit of at least one gas, in response to said control data item from the computer so as to change the oxygen level (FIO2) in the inspired gas flow accordingly.

34. (Amended) A device according to [any of claims 30-33]claim 30, wherein the computer further is adapted for performing a procedure at least once, the procedure comprising

determining, based on at least one measurement, whether additional measurements are required,

asserting a possible desired target defining a desired output of the first detection means,

producing a possible control data item based on the target, and

retrieving and storing, in the data structure, additional measurement results being the concurrent output produced by the first detection means and the second detection means.

35. (Amended) A device according to [any of claims 30-34]claim 30, wherein the second detection means are arranged for

detecting the level (FIO_2 , PIO_2) of oxygen in the gas flow passing into the respiratory system, and the device further comprises

third detection means for detecting the level ($\text{FE}'\text{O}_2$, $\text{F}\bar{\text{E}}\text{O}_2$, $\text{PE}'\text{O}_2$, $\text{P}\bar{\text{E}}\text{O}_2$) of oxygen in the gas flow passing out of the respiratory system and producing an output to the computer accordingly, and

fourth detection means for detecting variables (V_t , f , \dot{V}) of the gas flow passing the respiratory system and producing an output to the computer accordingly, said output being sufficient for the computer to establish the volume flow of gas passing the respiratory system,

the computer being adapted for retrieving and storing output from the third detection means and the fourth detection means within the data structure relating these stored output mutually as well as with the output from the first detection means and the second detection means retrieved simultaneously.

37. (Amended) A device according to [any of claims 30-36]claim 30, wherein the computer is adapted for determining at least one respiratory parameter (R_{diff} , shunt, \dot{V}/\dot{Q} , H-shift, V-shift) being descriptive of the condition of the individual, the determination being based on at least two measurements.

39. (Amended) A device according to claim 37 [or 38], wherein said parameter(s) (R_{diff} , shunt, \dot{V}/\dot{Q} , H-shift, V-shift)

is/are [generalised]generalized parameters being comparable to similar parameter(s) determined for other individuals.

40. (Amended) A device according to [any of claims 30-39]claim 30, wherein the computer is adapted to determine a parameter relating to an equilibrium state of the overall oxygen uptake or consumption of the individual based on the output of at least one of the detection means, to compare said parameter with a predefined threshold value and to produce a control data item accordingly if said parameter exceeds said threshold value.

41. (Amended) A device according to [any of claims 30-40]claim 30, wherein one gas is atmospheric air and another gas has an oxygen fraction higher than that of atmospheric air, preferably in the range 0.85 to 1.00.

42. (Amended) A device according to [any of claims 30-41]claim 30, wherein one gas is atmospheric air and another gas has an oxygen fraction in the range of 0.00 to 0.21, preferably 0.00 to 0.05.

43. (Amended) A device according to [any of claims 30-42]claim 30, wherein the oxygen saturation in the blood circulation of the individual is in the range of 65 to 100%, preferably 85 to 100%.

44. (Amended) A device according to [any of claims 30-42]claim 30, wherein the first detection means is arranged for detecting a parameter relating to the saturation level of oxygen in the arterial blood stream.

49. (Amended) A computer system comprising at least one general purpose computer having one or more computer programs stored within data storage means associated therewith, the computer system being arranged for as well as being adapted for determining one or more respiratory parameters according to [any of claims 1-48]claim 1.

50. (Amended) A computer program product being adapted to enable a computer system comprising at least one general purpose computer having data storage means associated therewith and being arranged suitably to determine one or more respiratory parameters according to [any of claims 1-48]claim 1.